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SIX NEW APHIDS FROM FLORIDA

With Description of the Sexual Forms of Another Species*

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Many families of insects of Florida are well known through the collections and writings of entomologists from this and other states. The Aphiidae, however, have been largely neglected, especially from a taxonomic standpoint, with the result that comparatively little is known concerning the Florida fauna of this group of insects. In the fall of 1925 the writer began a systematic study of the aphids of the state which has been carried on continuously since that time. About one-hundred-ten species are now known for the state and this number will doubtless be greatly increased when some practically untouched portions of the state have been visited by collectors. A number of these species are apparently new to science and it seems well that they should be described and recorded. This paper contains the descriptions of all the known forms of six new species together with the description of the sexual forms of another species.

CINARA CAROLINA, new species

Alate viviparous female. (Figs. 1, 3, 5, 6, 8, and 9.) Length 2.72 mm. General color dark brown with black markings. Spines on body and appendages pale to dusky. Head very dark brown, frontal portion black. Width of head through the compound eyes, .68 mm. Eyes black with prominent ocular tubercles. Ocelli bordered with black. First two segments of the antennae concolorous with the head; third, fourth and fifth segments each with basal portion light brown and apical portion very dark brown; sixth segment entirely dark brown. Right antenna with five sensoria on third segment, two on the fourth, one on the fifth in addition to the terminal one; sixth segment with one large and four small sensoria at the base of the unguis. Left antenna with ten sensoria on the third segment, one on the fourth and one on the fifth in addition to the usual terminal one; sixth segment with one large and three small sensoria. Length of the antennal segments as follows: I, .109 mm.; II, .109 mm.; III, .476 mm.; IV, .204 mm.; V, .252 mm.; VI, .163 mm. Rostrum extending slightly be-

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yond the openings of the cornicles. Basal portion white or pale yellowish, middle portion light brown with oval black spots, apical portion black.

Prothorax somewhat lighter brown than the head, without prominent lateral tubercles. Meso- and metathorax dark brown with lobes black and wing insertions yellowish. Wings hyaline; fore wing with stigma, and all veins except the radial sector and the media black; radial sector brown and media very faintly indicated and so appearing hyaline. The apex of the stigma meeting the wing margin in an obtuse angle and terminated by a distinct vein. Hind wing with two oblique veins; veins black. Femora of all pairs of legs black, with brown bases; tibiae of all legs with middle portion yellowish-brown; bases and apices black; tarsi of all legs black. Length of hind tibia 2.12 mm.; first segment of hind tarsus .095 mm., second joint .272 mm. in length. Hairs of the hind tibia of medium length, reclining, though those near the base are more nearly upright.

Abdomen tobacco brown; first segment with two elongated black areas on the dorsum; between these areas and the cornicles are five transverse rows of oval to circular black spots; between the cornicles and the cauda six irregular-shaped black areas. Cornicles large, black, on dark brown, gradually sloping bases. Cauda and anal plate black, broadly rounded with numerous hairs of medium length.

Apterous viviparous female. (Figs. 2, 4, and 7.) Length 3.50 mm. General color dark brown or bronze with numerous black markings on head, thorax and abdomen. Anterior half of body with a mealy covering. Hairs on body, antennae, and legs hyaline. Head very dark brown with a few small black spots. Width of head much greater than the length. Width through the compound eyes .721 mm. Eyes black, with prominent ocular tubercles. First two antennal segments dark brown; third segment yellowish except a small apical portion which is light brown; fourth and fifth segments each with basal half yellowish, and apical half brown; sixth segment entirely brown. Right antenna with one small sensorium near the apex of the third segment, a large oval sensorium on the fourth, the usual apical one of the fifth and the group at the base of the unguis of the sixth segment. Left antenna with two circular sensoria on the third segment; sensoria of the remaining segments as in the right antenna. Length of antennal segments: I, .122 mm.; II, .109 mm.; III, .476 mm.; IV, .204 mm.; V, .245 mm.; VI, .177 mm. Rostrum reaching to middle of abdomen; basal portion yellowish, mid-portion light brown with oval black spots, apical portion dark brown.

Thorax brown, somewhat lighter than the head, with black spots of various shapes and sizes, most numerous in the mid-dorsal region. Prothorax with rather prominent lateral tubercles. Femora of all legs brown, with basal portions lighter than the remainder; tibiae of all legs with yellowish middle portions, bases, and apices dark brown. Tarsi all black. Length of hind tibia 2.24 mm.; first joint of hind tarsus .109 mm., second joint .272 mm.

First two abdominal segments each with an irregular black area on each side of the median line. Last two segments each with two oblong black areas. In addition to these larger black areas a number of small circular black spots surround the bases of some of the body hairs. Cornicles and the broad gradually sloping cones black. Cauda and anal plate black; broadly rounded and with numerous moderately long curved hairs.

Type locality: Gainesville, Florida.

Types: Holotype alate viviparous female, collected near Pond A., from *Pinus taeda,* April 18, 1928, (F 354-28), and morphotype apterous viviparous female of the same colony deposited in the U. S. National Museum collection. Cat. No. 44302. Paratypes in the collection of the Entomology Department, Florida Agricultural Experiment Station and in the collection of the author. Type material collected by the author, and selected from a series of forty-five alate and twenty-three apterous females.

Notes: This species is included in an unpublished manuscript of H. F. Wilson, which was kindly loaned to the writer by Professor Wilson. To this insect he has given the name *carolina* which name is being retained with the permission of Professor Wilson. The species is apparently rather close to *Cinara australi* (Ashmead), but differs from his description in that the rostrum reaches only to the cornicles and the third antennal segment is not widest at the apex. On account of these differences and due to the very general nature of Ashmead's description it seems best to describe this as a new species rather than to refer it to the species *australi.*

In the FLORIDA ENTOMOLOGIST, Vol. V, no. 2, 1921, A. C. Mason lists *Lachnus pini* as feeding on *Pinus taeda* and in Vol. V, no. 4, 1922 of the same journal reports upon some life history experiments with this same species. Slides prepared by Mason and labeled *Lachnus pini* have been examined by the author and found to be identical with the species above described. There is some variation in size and form of body structures in different individuals. The minimum and maximum measurements of 15 alate females are as follows:

Length of body 2.72-3.52 mm.; width of head across the compound eyes .653-.680 mm.; length of antennal segments, I, .095-.109 mm.; II, .109 mm.; III, .462-.544 mm.; IV, .204-.218 mm.; V, .231-.258 mm.; VI, .163-.177 mm.; length of hind tibia 2.00-.212 mm.; first joint of hind tarsus .095-.109 mm., second joint .245-.286 mm. Third antennal segment with 5 to 10 sensoria, fourth with 1 or 2, and fifth with 1 or 2 in addition to the primary apical one. A study of seven apterous females gave the following measurements: length 3.0-3.5 mm.; width of head through the eyes .694-.725 mm.; length of antennal segments, I, .095-.122 mm., II, .095-.129 mm., III, .449-.503 mm., IV, .177-.231 mm., V, .204-.245 mm., VI, .136-.163 mm.; length of hind tibia 2.01-2.16 mm., first joint of hind tarsus .095-.109 mm., second tarsal joint .245-.286 mm. Third and fourth antennal segments each with 1 to 3 sensoria, fifth with 1 or 2 in addition to the apical one.

Collections: Pinus sp., Lake City, Mar. 28, 1897 (A. L. Quaintance); Gainesville, Apr. 23, 1926 (F 105-26), Feb. 3, 1928 (F 294-28); *Pinus taeda,* Apr. 16, 1914 (A. C. Mason); Gainesville, Mar. 3, 1928 (F 300-28), Mar. 22, 1928 (F 321-28), Apr. 18, 1928 (F 354-28), Apr. 6, 1932 (F 890-32), Apr. 25, 1932 (F 927-32), May 25, 1932 (F 950-32).

CINARA LONGISPINOSA, new species

Alate viviparous female. (Figs. 10, 12, 13, 15, 16, and 17.) Length 3.0 mm. Prevailing color brown; body with a fine, white, mealy covering. Body and appendages with prominent, long hairs. Head very dark brown, lateral extensions black. Width of head across the compound eyes .843 mm. Eyes red, situated on pronounced lateral extensions of the head, without ocular tubercles. Ocelli bordered with black. Antennae with first two segments brown, somewhat lighter than the head; third, fourth, and fifth segments each with basal half yellowish or dusky and apical portion dark brown; sixth segment dark brown except a very small basal portion which is yellowish. Measurements of antennal segments as follows: I, .109 mm., II, .095 mm., III, .517 mm., IV, .204 mm., V, .272 mm., VI, .231 mm. Right antenna with nine sensoria on the third segment, three on the fourth, the usual apical one on the fifth, the sixth with the large primary sensorium, and three small accessory ones. Numbers of sensoria on the segments of the left antenna similar to those of the right except that the fourth segment has but two. Rostrum reaching to third coxae; apical portion dark brown, base light brown.

Thorax dark brown with the thoracic lobes almost black; wing insertions yellowish. Prothorax without marked lateral tubercles. Wings hyaline; fore wing with costal margin dark brown, stigma and veins light brown; media much fainter than other veins. Apex of stigma forming almost a right angle with margin of the wing, ending rather abruptly but not terminated by a distinct vein. Hind wing normal, with two oblique veins; veins light brown. Legs with femora light brown at base shading to dark brown at apex, middle portion having a mottled appearance. Tibiae and tarsi entirely black. Tibiae decidedly curved. Femora and tibiae with very long curved hairs. Length of hind tibia 1.88 mm.; first joint of hind tarsus .150 mm., second tarsal joint .245 mm.

Abdomen brown, much lighter than head and thorax with numerous small, oval, dark brown spots in transverse rows on the dorsum. Abdomen thickly set with long, slightly curved hairs. Cornicles dark brown, situated on brown, steep-sided cones with curved hairs much shorter and finer than those of the abdomen. Cauda and anal plate rounded with several long, curved hairs; color dark brown.

Apterous viviparous female. (Figs. 11, 14 and 18.) Length 3.8 mm. Coloration much as in the alate form except that the abdomen has many more of the dark brown spots. Measurements of various structures as follows: width of head through the eyes .925 mm., length of antennal segments, I, .095 mm., II, .082 mm., III, .490 mm., IV, .245 mm., V, .258 mm., VI, .231 mm.; length of hind tibia 2.08 mm.; first joint of hind tarsus .177 mm., second joint .272 mm. Antennae without sensoria on third and fourth segments.

Type locality: Gainesville, Florida.

Types: Holotype, alate viviparous female collected at Devil's Mill Hopper, March 8, 1929 (F 486-29) and Morphotype, apterous viviparous female, same data as above, deposited in the U. S. National Museum Collection. Cat. No. 44303. Paratypes in the collections of the Entomology Department, Florida Agricultural Experiment Station, and in that of the author. Type material collected by the author, and selected from a series of five alate and five apterous females.

Notes: The most outstanding and distinctive characteristic of this aphid is the shape of the head which is very short and broad with pronounced lateral projections on which are situated the eyes. These latter organs are without ocular tubercles and projecting as they do give the aphids a very peculiar appearance when viewed from above. There is considerable variation in size among different individuals from the same colony.

Measurements of four alate females are as follows: length 3.0-4.1 mm.; width of head across the compound eyes .843-.952 mm.; length of antennal segments, I, .102-.109 mm., II, .095-.109 mm., III, .490-.585 mm., IV, .204-.245 mm., V, .252-.272 mm., VI, .231-.258 mm. Third antennal segment with 6 to 11 sensoria; fourth with 1 to 3; fifth with 0 to 2 in addition to the usual terminal one. Length of hind tibiae 1.88-2.00 mm.; first joint of hind tarsus .136-.163 mm., second joint .245-.258 mm. Three apterous females varied within following limits: length 3.4-4.2 mm.; width of head through the eyes .925-.952 mm.; length of antennal segments, I, .095-.109 mm., II, .082-.095 mm., III, .490-.544 mm., IV, .245-.272 mm., V, .258-.279 mm., VI, .231-.245 mm.; length of hind tibia 2.04-2.20 mm.; first joint of hind tarsus .150-.190 mm., second joint .272-.293 mm. Third and fourth antennal segments without sensoria.

Collections: Pinus taeda, Gainesville, Mar. 8, 1929 (F 486-29) and Mar. 22, 1929 (F 505-29).

CINARA TAEDAE, new species

Alate viviparous female. (Figs. 19, 21, 23, 24, 26, 27 and 28.) Length of body 2.52 mm.; general color dark brown. Head dark brown with several short fine hairs. Width of head through the compound eyes .571 mm. Eyes dark reddish-brown; rather prominent with distinct ocular tubercles. Ocelli clear, bordered with very dark brown. First two antennal segments concolorous with the head; third segment with the greater portion light yellowish-brown, a small apical portion dark brown, fourth and fifth segments each with basal one-half yellowish-brown, and apical portion dark brown; sixth segment entirely dark brown. Measurements of antennal segments as follows: I, .095 mm., II, .082 mm., III, .346 mm., IV, .163 mm., V, .183 mm., VI, .156 mm. The sensoria of the antennae very faint. Right antenna with 3 sensoria on the third segment, 1 on the fourth segment, and 1 on the fifth in addition to the primary terminal one; left antenna

with 4 sensoria on third segment, 2 on the fourth, and the fifth with 1 secondary sensorium; sixth segment of both antennae with the usual large primary sensorium and 3 small accessory sensoria at the base of the spur. Antennae with a few rather short fine hairs. Rostrum reaching just beyond the opening of the cornicles; brown throughout its length but with the apical portion darker than the remainder.

Prothorax brown, a shade lighter than the head; without lateral tubercles. Meso- and meta-thorax dark brown with the lobes very dark brown, almost black; wing insertions yellowish-brown. Each of these last two segments with a small lateral tubercle. Wings hyaline. Forewing with the stigma black, and the veins amber colored. Apex of the stigma meeting the wing margin at an acute angle and not terminated by a distinct vein. Median vein faintly indicated. Hind wing with amber colored veins, two oblique veins present.

Femora of all pairs of legs dark brown, with a small basal portion yellowish. Tibiae of first and second pairs of legs with bases and apices dark brown, the middle portions yellowish-brown; tibiae of last pair of legs entirely dark brown. Tarsi of all legs very dark brown. Hairs on the legs short, fine and reclining toward the apices of the joints. Length of hind tibia 1.76 mm.; first joint of hind tarsus .082 mm., second tarsal joint .218 mm.

Abdomen dark brown, without markings; each segment with a small lateral tubercle. Hairs of the abdomen short, slightly curved and hyaline. Cornicles black, situated on very dark brown, steep sided cones set with very fine short hairs. Cauda rather sharply rounded; anal plate broadly rounded; each set with numerous slightly curved short hairs.

Apterous viviparous female. (Figs. 20, 22 and 25.) Coloration of body and appendages very similar to those of the alate female. Variation in this form indicated by the following measurements of four individuals: length of body, 2.08-2.40 mm.; width of head across the eyes, .598-.653 mm.; length of antennal segments, I, .089-.095 mm., II, .068-.075 mm., III, .313-.340 mm., IV, .136-.156 mm., V, .177-.190 mm., VI, .150-.156 mm.; antennae without sensoria except the usual primary ones at apices of the fifth and sixth segments; length of hind tibia 1.64-1.72 mm.; first joint of hind tarsus .068-.982 mm., second joint .225-.245 mm.

Type locality: Gainesville, Florida.

Types: Holotype alate viviparous female collected on *Pinus taeda* in the grounds of the Florida Agricultural Experiment Station, March 15, 1928 (F 311-28), deposited in U. S. National Museum collection. Cat. No. 44304. Paratypes from same colony as the holotype in the collection of the Entomology Department, Florida Agr. Exp. Sta. and in the collection of the author. Type material collected by the author, and selected from a series of thirty-seven alate and twenty apterous females.

Collections: Pinus taeda, Gainesville, Mar. 15, 1928 (F 311-28), Apr. 6, 1932 (F 887-32).

Notes: This aphid is a bark-feeder being found between the bases of the needles on the younger shoots of the pine. It ap-

pears to be rather close to *pergandei* Wilson but differs from that species in the length of the beak, that structure being shorter in *pergandei*. This species also lacks the black spots which are found on the abdomen of *pergandei*. The variation in four alate females is indicated by the following measurements: length of body 2.24-2.80 mm.; width of head through the compound eyes .571-.612 mm.; length of antennal segments; I, .096-.108 mm., II, .074-.082 mm., III, .313-.367 mm., IV, .136-.163 mm., V, .183-.204 mm., VI, .150-.163 mm. The third segment with 1 to 4 sensoria, fourth with 1 or 2, fifth with 0 to 1 in addition to the apical primary one, and sixth segment with 1 large and 3 small sensoria in every case. Length of hind tibia 1.72-2.00 mm., first joint of hind tarsus .068-.082 mm., second tarsal joint, .218-.245 mm.

Calaphis castaneoides Baker
Baker, A. C., Proc. Ent. Soc. of Washington, XVIII, p. 187, 1916 (orig. desc.).

The sexual forms of this species appear to be undescribed and descriptions are here presented.

Alate male.—Prevailing colors yellowish-brown and black. Length of body 1.40 mm. Head yellowish-brown. Width somewhat greater than the length. Frontal margin with a few pointed spine-like hyaline hairs. Width through the compound eyes .371 mm. Compound eyes reddish-brown, large, with prominent ocular tubercles. Median ocellus large, prominent, lateral ocelli inconspicuous. Antennae six-segmented, considerably longer than the body. First two segments and small basal portion of the third about same color as the head, remainder of the third darker brown. Basal portions of the fourth, fifth, and sixth light brown, the apical portions dark brown. Unguis of the sixth yellowish brown. All segments armed with a few rather long, pointed, hyaline spines. Secondary sensoria present on third, fourth, fifth, and sixth segments; those on the third segment scattered over most of the surface of the segment, on the fourth, fifth, and sixth largely confined to one side of the segments, in some specimens to a single irregular row. Comparative length of the antennal segments as follows: III, .500 mm.; IV, .257 mm.; V, .228 mm.; VI, base, .143 mm.; unguis, .400 mm. Rostrum yellow with extreme tip brown, rather thick and short extending but little beyond the first coxae.

Prothorax yellow, long, and somewhat wider than the head, meso- and meta-thorax yellow with the lobes brown. Wings hyaline, costal margin of fore wing and posterior margin of stigma dark brown, a dark brown spot near the base of stigma. Anal and cubital veins bordered with brown shading, the shading of cubital confined to basal one-half of vein. Second fork of media somewhat closer to first fork than to margin of the wing. Radial sector faint, basal portion nearly obsolete. Hind wing with two oblique veins very faintly indicated. Legs long and slender. Femora

yellowish, tibiae and tarsi mostly dark brown. The tibiae armed with numerous pointed, hyaline spines, a smaller number on the other leg segments.

Abdomen yellow, without markings. Cornicles, cauda, and anal plate concolorous with the abdomen. Genitalia brown. Cornicles truncate, length .071 mm., width at base .078 mm. Cauda knob-like, anal plate very slightly indented. Cauda and anal plate armed with several rather long, curved, hyaline hairs.

Apterous oviparous female.—Prevailing colors yellow and dark brown or black. Length 2.11 mm. Head yellowish-brown, anterior margin darker than remainder. Anterior portion armed with six or eight long, slightly curved hyaline hairs, several similar though shorter hairs on the dorsal surface. Width of head through the compound eyes .428 mm. Eyes reddish, rather large, with prominent ocular tubercles. Antennae six-segmented, slightly shorter than the body. First two segments dusky or light brown, remaining segments light yellowish brown with apices dark brown. Spines on the first two segments pointed or slightly enlarged at tip, those on remaining segments about as long as width of segments and somewhat enlarged at tip. Segments III to VI imbricated. Length of antennal segments as follows: III, .543 mm., IV, .257 mm., V, .228 mm., VI, base, .128 mm., unguis, .443 mm. Rostrum yellow with tip brown, reaching nearly to second coxae.

Pro- and meso-thorax mostly brown; metathorax and abdomen yellowish with brown markings. Anterior abdominal segments with dorsal transverse brown stripes and large lateral areas of the same color. Anterior to the cornicles the dark spots have largely merged forming a large dorsal brown patch. Prothorax slightly wider than the head with a small lateral tubercle on each side near the posterior margin. Femora of all legs yellowish, tibiae and tarsi brown. Hind tibiae swollen, with sensoria confined to basal half. Legs, especially the tibiae, with numerous rather long pointed spines. Cornicles dusky or light brown, truncate, .071 mm. long. Cauda knobbed, yellowish or dusky.

Note: The specimens on which the above descriptions are based have been deposited in the U. S. National Museum Collection.

Collections: Castanea nana, Gainesville, Oct. 1, 1928 (F 407-28) (alate vivip. females and pupae), Nov. 15, 1928 (F 420-28), (alate vivip. females and ovip. females), Nov. 4, 1929 (F 544-29), Nov. 8, 1929 (F 547-29) (alate vivip. females, ovip. females and males).

CALAPHIS NANAE, new species

Alate viviparous female. (Figs. 29-35.) General color yellow and black. Length 1.44 mm. Head greenish-yellow, anterior margin dusky. Width much greater than length with rather definite antennal tubercles. Armed with a few short, curved, capitate spines. Width through the compound eyes .422 mm. Eyes red, rather large with prominent ocular tubercles. Antennae as long as, or longer than, the body. First segment greenish-

yellow; second dusky; third yellowish with black or dark brown areas surrounding the sensoria and at the apex; fourth, fifth, and sixth yellowish at base and shading to dark brown at the apex. All segments with very short, reclining, capitate spines. Length of the antennal segments as follows: I, .095 mm., II, .068 mm., III, .734 mm., IV, .340 mm., V, .340 mm., VI, base, .150 mm., unguis, .734 mm. Third segment with six circular sensoria arranged in a straight row and unevenly spaced along the segment. Fourth segment without sensoria. Rostrum yellowish, with apex black; reaching to the first coxae.

Thorax greenish-yellow, the lobes light brown, membranes and wing insertions yellow. Prothorax slightly wider than the head, without prominent lateral tubercles; mesothorax with small lateral tubercles near the anterior margin. Wings hyaline. Fore wing with radial sector very faintly indicated. Stigma yellow, with the inner margin black. Anal vein and base of the cubitus bordered with black, other veins dark brown. Hind wing with veins light brown; rather faint. Femora of all pairs of legs yellow at bases and shading to brown at the apices; tibiae with middle portions yellow, bases and apices dark brown; tarsi dark brown. Legs with short, reclining, capitate spines, especially numerous on the tibiae.

Abdomen greenish-yellow, with a yellowish-brown area between the cornicles. Along each side of the mid-dorsal line a longitudinal row of oval, dusky spots; larger dusky markings along the lateral margins of the abdomen. A few rather long, capitate hairs between the cauda and the cornicles. Cornicles light brown with the apices somewhat darker. Somewhat longer than wide, truncate with the apex slightly flared. Length .095 mm. Cauda light brown; distinctly knobbed and armed with a few long, slightly curved hairs situated on rather large conical bases. Anal plate yellowish, bilobed, with numerous curved hairs arising from conical bases, those at the apices of the lobes longer and thicker than the lateral ones.

Type locality: Gainesville, Florida.

Types: Holotype alate viviparous female collected May 4, 1928 near the Devil's Mill Hopper; deposited in the U. S. National Museum Collection. Cat. No. 44305. Paratypes from the same locality in the collections of the Ent. Dept., Florida Agr. Exp. Sta., of A. A. Granovsky, and in that of the author. Type selected from a series of fifty-four specimens. Type material collected by the author.

Notes: This species has been collected only from the small reclining chinquapin, *Castanea nana*. The alate viviparous female and nymphs are the only forms that have been taken. This insect occasionally occurs in association with the preceding species. A study of ten alate females gave the following measurements: length 1.32-1.92 mm.; width of head .394-.428 mm.; length of antennal segments, I, .095-.109 mm., II, .054-.068 mm., III, .694-.816 mm., IV, .340-.394 mm., V, .299-.381 mm., VI, base,

.122-.163 mm., unguis, .734-.816 mm. Third segment with 4 to 9 sensoria, fourth segment without sensoria.

Collections: Castanea nana, Gainesville, May 4, 1928 (F 375-28), Oct. 1, 1928 (F 407B-28), Apr. 22, 1930 (F 602-30), May 25, 1932 (F 949-32).

NEOSYMYDOBIUS LUTEUS, new species

Alate viviparous female. (Figs. 43-45 and 47-50.) Prevailing colors yellowish and brown. Length 1.24 mm. Head dark brown; width somewhat greater than the length. Frontal portion between the antennae somewhat produced so that when viewed from above the head is triangular in outline. Width of head across the compound eyes, .394 mm. Head with a few very short, fine spines. Eyes reddish; closely appressed to the head, with definite ocular tubercles. Ocelli rather small. Antennae slightly over half as long as body. First two segments dusky or light brown; third, fourth, fifth, and base of the sixth segment pale or very light brown, apices dark brown; unguis of the sixth segment with basal portion pale and apex light brown. Third segment with four rather large circular sensoria, fourth segment without sensoria. Antennae with a few extremely short fine hairs. Length of segments as follows: I, .048 mm., II, .048 mm., III, .190 mm., IV, .136 mm., V, .136 mm., VI, base, .109 mm., unguis, .122 mm. Rostrum yellowish, with the tip light brown.

Prothorax olive-brown, lighter than the head. Meso- and meta-thorax dark brown with the lobes very dark brown, almost black. Prothorax somewhat wider than the head, narrowest in front, with low, blunt, lateral tubercles. Meso- and meta-thorax each with a conical tubercle at the anterior lateral margin. Wing insertions yellowish. Wings hyaline. Fore wing with radial sector present though somewhat fainter than other veins; media twice-branched. Stigma and veins light brown, a very faint shading at the tips of the veins. Hind wing with two cross veins present; veins very light brown. All pairs of legs dusky or light yellowish-brown, with the tarsi light brown. Legs with short, fine, reclining, hyaline hairs, most numerous and longest on the tibiae.

Abdomen with first two segments dusky, remainder very pale greenish-yellow. Along each side of the dorsal median line is an irregular longitudinal band of brighter yellowish-green with areas of the same color along the lateral margins. Cornicles very pale yellow, almost white; truncate, slightly longer than wide, somewhat constricted above the middle. Cauda knobbed, much wider than long; armed with several curved hyaline hairs which are slightly longer than the cauda. Anal plate bilobed with numerous hairs much longer and thicker than those of the cauda, situated on large conical bases. Cauda and anal plate pale dusky.

Type locality: Gainesville, Florida.

Types: Holotype alate viviparous female collected from *Quercus nigra,* May 12, 1928 (F 302-28), placed in the U. S. National Museum Collection. Cat. No. 44306. Paratypes from same host and locality in the collections of the Entomology Department, Florida Agr. Exp. Sta., of A. A. Granovsky, and in that of the

author. Types selected from sixty-three alate females. Type material collected by the author.

Notes: This species appears to be rather close to *Neosymydobius mimicus* Hottes but differs from that species in the following respects: the abdomen does not have the greenish-brown bands found in *mimicus;* the fourth and fifth antennal segments are subequal and the unguis of the sixth is as long as, or longer than, the fifth, and the base of the sixth is longer than the unguis. It also appears to be rather similar to *Neosymydobius memorialis* Hottes and Frison but can be distinguished from that species by the sensoria of the third antennal segment and the relative length of the base and unguis of the sixth segment. This species has four to six sensoria on the third antennal segment, whereas *memorialis* has eight to ten. The unguis of the sixth antennal segment is subequal to the base in *luteus;* in *memorialis* the unguis is much longer than the base. In some specimens of this species the abdomen is pale yellowish with orange markings taking the place of the brighter green markings of the specimess having the greenish-yellow abdomen. A single apterous viviparous female was taken. This specimen was yellowish with the tarsi and the apices of the antennal segments dusky or light brown. Measurements of five alate females as follows: length, 1.24-1.72 mm.; width of head, .367-.435 mm.; length of antennal segments, III, .177-.258 mm.; IV, .136-.190 mm.; V, .136-.177 mm.; VI, base, .109-.136 mm.; unguis, .122-.136 mm.; third segment with 4-6 sensoria, fourth segment always without sensoria.

Collections: Quercus nigra, Gainesville, Apr. 24, 1928. (F 357-28), May 12, 1928 (F 382-28), *Quercus cinerea,* Lady Lake, Apr. 8, 1932. (F 899-32 & F 902-32).

THERIOAPHIS TECTAE, new species

Alate viviparous female.—(Figs. 36-42.) Prevailing colors green and brown. Length of body 2.08 mm. Head yellowish, with a dusky, median, longitudinal band. The anterior margin and an area surrounding the eyes and antennae also dusky. Front of head with a few fine, curved hairs. Width through the compound eyes .435 mm. Eyes red; large, with distinct ocular tubercles. Antennae slightly shorter than the body. First two segments dark brown; third segment with basal portion yellowish-brown, middle yellow, and apical portion very dark brown or black; fourth segment with basal half yellowish, apical half dark brown; fifth segment with basal half light brown and apical part dark brown; sixth segment entirely light brown. Third segment with the basal one-third somewhat thicker than the remainder of the segment. Third to sixth segments imbricated.

Length of antennal segments: I, .095 mm., II, .075 mm., III, .066 mm., IV, .381 mm., V, .313 mm., VI, base, .168 mm., unguis, .177 mm. Third segment with five oval sensoria in a single row on the thickened basal portion. Fourth segment without sensoria. Hairs on the antennae very short and spine-like. Rostrum short and thick reaching not quite to hind margin of prothorax, light brown with tip dark brown.

Thorax yellowish-green with a faint, median, longitudinal, dusky band; lobes pale, almost white. Prothorax somewhat wider than the head, without lateral tubercles. Wings hyaline. Fore wing with radial sector faintly indicated, media twice-branched. Stigma broad, tapering rapidly, brown; veins light brown with small shaded areas at the tips. Hind wings with both media and cubitus present. Legs entirely light brown. All segments of the legs with short reclining hairs, especially numerous at the apex of the tibiae.

Abdomen yellowish-green without markings. Cornicles truncate, widest at base and somewhat constricted above the middle. Length .955 mm. Cauda distinctly knobbed, with two thick curved spines and several finer slightly curved hairs, arising from raised conical bases. Anal plate deeply bifid, the lobes separated by a U-shaped cleft. Each lobe with several curved hairs arising from conical bases. Cauda and anal plate dusky green.

Type locality: Gainesville, Florida.

Types: Holotype alate viviparous female collected on the grounds of the Florida Agricultural Experiment Station April 16, 1930 (F 587-30), deposited in the U. S. National Museum Collection. Cat. No. 44307. Paratypes from the same host and locality, in the collections of the Ent. Dept., Florida Agr. Exp. Sta., of A. A. Granovsky, and in that of the author. Type selected from a series of one-hundred-three alate females. Type material collected by the author.

Notes: On the growing tips and young leaves of the native bamboo, *Arundinaria tecta* were found during the spring of 1930 rather large colonies of this green aphid. The alate viviparous female is the only form that has been taken, and apparently all mature females are winged.

Collections: Bamboo, Jacksonville, May 11, 1922 (Beyer); Gainesville, Apr. 16, 1930 (F 587-30), Apr. 25, 1930 (F 619-30).

Explanation of Plate I

Figs. 1-9 *Cinara carolina*, n. sp. (1, 3, 5, 6, 8, & 9 alate; 2, 4, & 7 apterous).

Figs. 10-18 *Cinara longispinosa*, n. sp. (10, 12, 13, 15, 16, 17 alate; 11, 14, 18 apterous)

Figs. 19-28 *Cinara taedae*, n. sp. (19, 21, 23, 24, 26, 27, 28 alate; 20, 22, 25 apterous).

Figs. 29-35 *Calaphis rarae*, n. sp. (alate).

Figs. 36-42 *Tuberculoides tectae*, n. sp. (alate).

Figs. 43-50 *Neosymydobius luteus*, n. sp. (43-45, 47-50 alate; 46 apterous).

New Florida Aphids—Plate I

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PIN WORM ON TOMATOES

Growers of tomatoes in the Bradenton district suffered rather severe losses during the past spring from attacks of a small caterpillar. This caterpillar bores into the fruit under the calyx. It does not enter the fruit far, but attacked tomatoes will invariably decay before they get to market; and, because of the fact that these caterpillars are so well hidden under the calyx, detection of infested fruit is very difficult.

The caterpillars became particularly abundant towards the close of the season. An investigation after the season closed revealed that practically 100% of the fruit still clinging to the vines had been attacked.

These insects were reared by Mr. H. E. Bratley of the Department of Entomology, and submitted to the Bureau of Entomology, U.S.D.A. They were identified as *Gnorimoschema lycopersicella* Busck.

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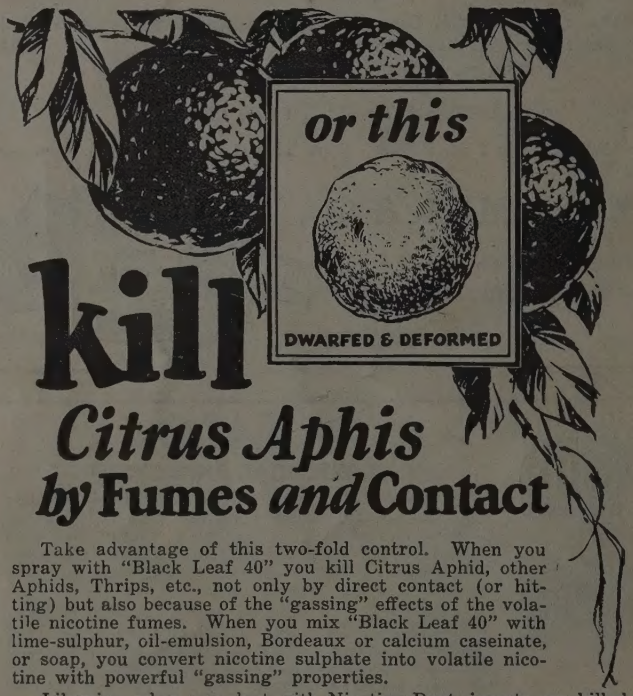

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